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## New Subtribes of the Lactuceae (Asteraceae)

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**ABSTRACT.** The subtribal classification of tribe Lactuceae is emended to include three new subtribes: Catananchinae (Mediterranean; *Catananche*, *Hymenonema*, *Rothmaleria*), Malacothricinae (North American; *Anisocoma*, *Atrichoseris*, *Calycoseris*, *Glyptopleura*, *Malacothrix*, *Munzothamnus*, *Pinaropappus*), and Sonchinae (almost worldwide; *Sonchus*, *Launaea*, and their immediate relatives).

In a forthcoming book on the cladistics and classification of the Asteraceae (Bremer, in press), a revised tribal and subtribal classification is presented. In the tribe Lactuceae, this necessitates description of three new subtribes. The most recent subtribal classification of the Lactuceae is by Stebbins (1953), who divided the Lactuceae into eight subtribes and a number of subgroups:

- Scolyminae Lessing
- Cichoriinae O. Hoffmann
  - Tolpis*–*Arnoseris* generic group
  - Catananche*–*Hymenonema* generic group
- Microseridinae Stebbins
- Stephanomeriinae Stebbins
  - Stephanomeria* generic group
  - Malacothrix* generic group
- Dendroseridinae Bentham & Hooker f.
- Scorzonerinae Dumortier
- Leontodontinae O. Hoffmann (= Hypochaeridinae Lessing)
- Crepidinae Dumortier
  - Dubyaea*–*Sorosseris* line
  - Launaea*–*Sonchus* line
  - Hieracium*–*Andryala* line
  - Prenanthes*–*Lactuca* line
  - Youngia*–*Ixeris* line
  - Crepis* line

This classification was modified by Jeffrey (1966), but he did not recognize any formal subtribes. I propose to combine the *Tolpis*–*Arnoseris* and *Hieracium*–*Andryala* groups as a separate subtribe Hieraciinae (Bremer, in press). This is in agreement with Jeffrey (1966), who classified these genera together in his *Tolpis* subgroup. I will also remove Stebbins's *Prenanthes*–*Lactuca* line to a separate subtribe Lactucinae (Bremer, in press). Both sub-

tribal names, Hieraciinae Dumortier and Lactucinae Dumortier, are already available (cf. Solbrig, 1963). My further reclassification of the Lactuceae includes three new subtribes based on the *Catananche*–*Hymenonema*, *Malacothrix*, and *Launaea*–*Sonchus* groups.

*Catananche*, *Hymenonema*, and *Rothmaleria* are regarded as isolated genera in the Lactuceae. They share involucre bracts with scarious margins, bristly-scaly to paleate receptacles, and a pappus of few large scales usually prolonged into stiff bristles. *Catananche* is circum-Mediterranean in distribution, *Hymenonema* occurs in Greece, and *Rothmaleria* in Spain. In a cladistic analysis of 23 genera of the Lactuceae and 23 morphological characters (Bremer, in press), the three genera *Catananche*, *Hymenonema*, and *Rothmaleria* consistently form a monophyletic group, occupying a phylogenetically basal position as sister group to most of the tribe. They are described here as a new subtribe, Catananchinae.

Stebbins (1953) described the subtribe Stephanomeriinae. He noted that the genera he included are rather diverse in habit and technical characters, and that there is no single diagnostic character for the subtribe. The Stephanomeriinae are entirely North American in distribution, and most of the species differ from most Old World Lactuceae by their echinate pollen grains. Stebbins divided his Stephanomeriinae into two rather different groups, the *Stephanomeria* group and the *Malacothrix* group. The latter comprises mostly few-branched, sometimes scapose annual herbs (*Anisocoma*, *Atrichoseris*, *Calycoseris*, *Glyptopleura*, *Malacothrix*; cf. Williams, 1957). They frequently have scarious-margined involucre bracts and bristly-scaly receptacles, and are in these features, but not in others, similar to the Catananchinae. The perennial *Pinaropappus* with a paleate receptacle is somewhat aberrant, but presumably related to *Malacothrix* (Jeffrey, 1966). The shrubby *Munzothamnus* (Raven, 1963), originally described as a species of *Stephanomeria*, is difficult to classify but is possibly more closely related to *Malacothrix* than to *Stephanomeria* and hence is possibly a specialized representative of the *Malacothrix* group. The position

of *Munzothamnus* must be regarded as tentative. In my cladistic analysis of the Lactuceae (Bremer, in press), both *Malacothrix* and *Stephanomeria* were included. The two genera never appeared together in the resulting cladograms, even though the position of *Stephanomeria* was very unstable. In Jansen et al.'s (1991) analysis of chloroplast DNA restriction site variation in the subtribe Microseridinae, *Stephanomeria* was included and appeared as nested within that subtribe. Stebbins's *Malacothrix* group is described here as a new subtribe Malacothricinae, separate from the Stephanomeriinae and the Microseridinae.

The *Launaea*-*Sonchus* group of Stebbins (1953) comprises two entities, *Launaea* with the related genera *Aetheorhiza* (Rechinger, 1974) and *Reichardia* (Gallego et al., 1980), and the *Sonchus* group of closely related genera (*Actites*, *Babcockia*, *Embergeria*, *Kirkianella*, *Lactucosonchus*, *Sonchus*, *Sventenia*, *Taeckholmia*; cf. Boulos, 1972, 1973, 1974a, b; Aldridge, 1976a, b; Lander, 1976). Many *Launaea* species share the compressed, non-beaked fruits and the dimorphic pappus, consisting of intermixed bristles and fine hairs, typical of *Sonchus*. Hence it appears that the two subgroups are closely related and that the entire *Launaea*-*Sonchus* group is monophyletic. It has a scattered but very wide distribution with many *Sonchus* and *Launaea* species in Eurasia and throughout Africa. Several genera and species are restricted to the Canary Islands (*Babcockia*, *Lactucosonchus*, *Sventenia*, *Taeckholmia*); others occur exclusively in Australia (*Actites*) and New Zealand (*Embergeria*, *Kirkianella*). Stebbins included the *Launaea*-*Sonchus* group in his Crepidinae sensu lato, a highly polyphyletic taxon. The Crepidinae will be reclassified into four subtribes (Bremer, in press), Crepidinae sensu stricto, Hieraciinae, Lactucinae, and Sonchinae. In the cladistic analysis (Bremer, in press) *Sonchus* never grouped with the genera representing the three other subtribes. The Sonchinae are described here as a new subtribe.

**Catananchinae** K. Bremer, subtribus nov. TYPE: *Catananche* L.

Herbae annuae vel perennes. Bractee involucri margine plus minusve scariosae. Receptaculum setosum vel paleaceum. Cypselae teretes vel subangulatae et obconicae, ecostatae, erostratae. Pappus e squamis ovato-lanceolatis, apice plerumque in setam scabrido-barbellatam prolongatis, constatus.

Annual or perennial herbs. Involucral bracts with  $\pm$  scarios margins. Receptacle setose or paleate. Cypselas terete or subangular and obconical, without ribs and without beak. Pappus of ovate-lanceolate

scales apically often prolonged into scabrid-barbellate bristles.

Mediterranean, eight species in three genera: *Catananche* L., *Hymenonema* Cassini, *Rothmaleria* Font Quer.

**Malacothricinae** K. Bremer, subtribus nov. TYPE: *Malacothrix* DC.

Herbae annuae vel interdum perennes. Bractee involucri margine plerumque scariosae. Receptaculum vulgo squamosum, raro paleaceum. Cypselae tereti-fusiformes vel obovoideae, costatae, interdum rostratae. Pappus e setis tenuibus scabridis vel raro plumosis constatus vel raro nullus, extra saepe coronam minutam ferens.

Annual or sometimes perennial herbs. Involucral bracts often with scarios margins. Receptacle generally squamose, rarely paleate. Cypselas teretiform or obovoid, ribbed, sometimes beaked. Pappus of slender, scabrid or rarely plumose bristles, or rarely absent, often surrounded by a minute corona.

North American, 33 species in 7 genera: *Anisocoma* Torrey & A. Gray, *Atrichoseris* A. Gray, *Calycoseris* A. Gray, *Glyptopleura* Eaton, *Malacothrix* DC., *Munzothamnus* P. H. Raven, *Pinaropappus* Lessing.

**Sonchinae** K. Bremer, subtribus nov. TYPE: *Sonchus* L.

Herbae annuae vel perennes, suffrutices vel frutices. Bractee involucri herbaceae, interdum margine scariosae. Receptaculum nudum. Cypselae plus minusve compressae, ellipsoideo-fusiformes vel oblongo-obovoideae, leviter costatae, laeves vel rugulosae vel valde rugosae, interdum apice attenuatae, erostratae vel rarissime breviter rostratae. Pappus e setis scabrido-barbellatis vel saepe dimorphus e setis et pilis tenuibus mixtis constatus.

Annual or perennial herbs, subshrubs, or shrubs. Involucral bracts herbaceous, sometimes with scarios margins. Receptacle naked. Cypselas  $\pm$  compressed, ellipsoid-fusiform or oblong-obovoid, slightly ribbed, smooth or rugulose to strongly rugose, sometimes attenuate apically, without beak or very rarely with a short beak. Pappus of scabrid-barbellate bristles or dimorphic of intermixed bristles and fine hairs.

Almost worldwide, mainly Eurasia and Africa, Canary Islands, also North America, Australia, and New Zealand, ca. 130 species in 11 genera: *Actites* Lander, *Aetheorhiza* Cassini, *Babcockia* Boulos, *Embergeria* Boulos, *Kirkianella* Allan, *Lactucosonchus* (Schultz Bipontinus) Sventenius, *Launaea* Cassini, *Reichardia* Roth, *Sonchus* L., *Sventenia* Font Quer, *Taeckholmia* Boulos.

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